

## Chapter NR 428

## CONTROL OF NITROGEN COMPOUND EMISSIONS

- NR 428.01 Applicability; purpose.  
 NR 428.02 Definitions.  
 NR 428.03 General limitations.

**Subchapter I — NO<sub>x</sub> Emissions Performance Program General Provisions**

- NR 428.04 Requirements and performance standards for new or modified sources.  
 NR 428.05 Requirements and performance standards for existing sources.

**Subchapter II — NO<sub>x</sub> Emissions Performance Program Compliance Provisions**

- NR 428.06 Determination of compliance.

**Subchapter III — NO<sub>x</sub> Emissions Performance Program Monitoring And Reporting Provisions**

- NR 428.07 General requirements.  
 NR 428.08 Specific provisions for monitoring NO<sub>x</sub> and heat input for the purpose of calculating NO<sub>x</sub> mass emissions.  
 NR 428.09 Quarterly reports.  
 NR 428.10 Petitions.  
 NR 428.11 Additional requirements to provide heat input data.

**Note:** Corrections made under s. 13.93 (2m) (b) 7., Stats., Register, December, 1996, No. 492. Corrections in NR 428.04 to 428.08 made under s. 13.93 (2m) (b) 7., Stats., Register, January, 2001, No. 541.

**NR 428.01 Applicability; purpose. (1) APPLICABILITY.** This chapter applies to all air contaminant sources which emit nitrogen compounds and to their owners and operators. All references to the code of federal regulations in this chapter mean those parts or provisions as in effect on February 1, 2001, except that in the case of CFR appendices incorporated by reference in ch. NR 484, if a more recent date is specified in the applicable section of ch. NR 484, that date shall apply.

**(2) PURPOSE.** This chapter is adopted under ss. 285.11, 285.13 and 285.17, Stats., to categorize nitrogen compound air contaminant sources and to establish emission limitations and other requirements for these sources in order to protect air quality.

**History:** Cr. Register, September, 1986, No. 369, eff. 10-1-86; am. (1), Register, May, 1992, No. 437, eff. 6-1-92; am. Register, January, 2001, No. 541, eff. 2-1-01.

**NR 428.02 Definitions.** The definitions contained in ch. NR 400 apply to the terms used in this chapter. In addition, the following definitions apply to the terms used in this chapter:

**(1) "Biologically derived gaseous fuel"** means a gaseous fuel resulting from biological processing of a carbon-based feedstock.

**(1m) "Capacity factor"** means one of the following:

(a) The ratio of a unit's actual electric output (expressed in MWe-hr) to the unit's nameplate capacity times the unit's potential hours of operation. The potential hours of operation on an annual basis are 8,760 hours, and on an ozone season basis are 3,672 hours.

(b) The ratio of a unit's heat input (in million Btu or equivalent units of measure) to the unit's maximum design heat input (in million Btu per hour or equivalent units of measure) times the unit's potential hours of operation.

**(2) "Combined cycle system"** means a system comprised of one or more combustion turbines, heat recovery steam generators and steam turbines configured to improve overall efficiency of electricity generation or steam production.

**(3) "Combustion controls"** has the meaning given in s. NR 409.02 (21m).

**(4) "Combustion optimization"** means those activities necessary to maximize combustion efficiency while minimizing NO<sub>x</sub> emissions, including but not limited to the following: burner adjustments, fuel conditioning, fuel flow improvements, furnace design modifications and the application of combustion controls.

**(5) "Combustion turbine"** means an enclosed fossil or other fuel-fired device that is comprised of a compressor, a combustor and a turbine, and in which the flue gas resulting from the combustion of fuel in the combustor passes through the turbine, rotating the turbine.

**(6) "Commencement of operation"** means the beginning of any mechanical, chemical or electronic process, including, with regard to a unit, startup of a unit's combustion chamber.

**(6m) "Integrated gasification process"** means a high temperature process in which gaseous fuel is produced onsite from a carbon-based feedstock.

**(7) "Kraft recovery boiler"** means "recovery furnace", as defined in s. NR 440.45 (2) (L).

**(8) "Unit"** means a solid fuel-fired or fossil fuel-fired combustion device.

**History:** Cr. (intro.), renum. from NR 154.01 (122), Register, September, 1986, No. 369, eff. 10-1-86; am. (intro.), r. (1), Register, June, 1993, No. 450, eff. 7-1-93; am. (intro.), cr. (1) to (8), Register, January, 2001, No. 541, eff. 2-1-01; CR 02-076: cr. (6m) Register November 2002 No. 563, eff. 12-1-02; **CR 03-049: renum. (1) to be (1m), cr. (1) Register December 2003 No. 576, eff. 1-1-04.**

**NR 428.03 General limitations.** No person may cause, allow or permit nitrogen oxides or nitrogen compounds to be emitted to the ambient air which substantially contribute to the exceeding of an air standard or cause air pollution.

**History:** Renum. from NR 154.15 (1), Register, September, 1986, No. 369, eff. 10-1-86; am. Register, May, 1992, No. 437, eff. 6-1-92.

**Subchapter I — NO<sub>x</sub> Emissions Performance Program General Provisions**

**NR 428.04 Requirements and performance standards for new or modified sources. (1) APPLICABILITY.** The requirements of this section apply to emissions units described in this section that are located in Kenosha, Milwaukee, Ozaukee, Racine, Washington or Waukesha County and that are constructed or that undergo a major modification, as that term is described in ch. NR 405 or 408, after February 1, 2001

**(2) PERFORMANCE STANDARDS. (a) Boilers. 1.** Solid fuel-fired units. No person may cause, allow or permit nitrogen oxides to be emitted from a solid fuel-fired boiler in amounts greater than those specified in this subdivision.

a. 0.15 pound per million Btu of heat input on a 30-day rolling average basis for boilers with a maximum design heat input of 250 million Btu per hour or greater.

b. 0.20 pound per million Btu of heat input on a 30-day rolling average basis for boilers with a maximum design heat input of less than 250 million Btu per hour.

2. Gaseous fuel-fired units. No person may cause, allow or permit nitrogen oxides to be emitted from a gaseous fuel-fired boiler with a maximum design heat input of 25 million Btu per hour or greater in an amount greater than 0.05 pound per million Btu of heat input on a 30-day rolling average basis.

3. Distillate fuel oil-fired boilers. No person may cause, allow or permit nitrogen oxides to be emitted from a distillate fuel oil-fired boiler with a maximum design heat input of 25 million

Btu per hour or greater in an amount greater than 0.09 pound per million Btu of heat input on a 30-day rolling average basis.

4. Residual fuel oil-fired boilers. No person may cause, allow or permit nitrogen oxides to be emitted from a residual fuel oil-fired boiler with a maximum design heat input of 25 million Btu per hour or greater in an amount greater than 0.15 pound per million Btu of heat input on a 30-day rolling average basis.

5. Kraft recovery boilers. No person may cause, allow or permit nitrogen oxides to be emitted from a kraft recovery boiler with a maximum design heat input of 50 million Btu per hour or greater in an amount greater than 0.10 pound per million Btu of heat input on a 30-day rolling average basis.

(b) *Cement kilns, lime kilns and calciners.* No person may cause, allow or permit nitrogen oxides to be emitted from a cement kiln, lime kiln or calciner with a maximum design heat input of 50 million Btu per hour or greater in amounts greater than those specified in this paragraph.

1. 0.10 pound per million Btu on a 30-day rolling average basis when burning gaseous fuel.

2. 0.12 pound per million Btu on a 30-day rolling average basis when burning distillate fuel oil.

3. 0.20 pound per million Btu on a 30-day rolling average basis when burning residual fuel oil.

4. 0.60 pound per million Btu on a 30-day rolling average basis when burning solid fuel.

(c) *Reheat, annealing and galvanizing furnaces.* No person may cause, allow or permit nitrogen oxides to be emitted from a reheat furnace, annealing furnace or galvanizing furnace with a maximum design heat input of 50 million Btu per hour or greater in an amount greater than 0.10 pound per million Btu on a 30-day rolling average basis.

(d) *Glass furnaces.* No person may cause, allow or permit nitrogen oxides to be emitted from a glass furnace with a maximum design heat input of 50 million Btu per hour or greater in an amount greater than 4.0 pounds per ton of pulled glass on a 30-day rolling average basis.

(e) *Asphalt plants.* No person may cause, allow or permit nitrogen oxides to be emitted from an asphalt plant with a maximum design heat input of 50 million Btu per hour or greater in amounts greater than those specified in this paragraph.

1. 0.15 pound per million Btu of heat input on a 30-day rolling average basis when burning gaseous fuel.

2. 0.20 pound per million Btu of heat input on a 30-day rolling average basis when burning distillate fuel oil.

3. 0.27 pound per million Btu of heat input on a 30-day rolling average basis when burning residual fuel oil or waste oil.

(f) *Process heating units.* No person may cause, allow or permit nitrogen oxides to be emitted from a process heater, dryer, oven or other external combustion unit with a maximum design heat input of 50 million Btu per hour or greater in amounts greater than those specified in this paragraph.

1. 0.10 pound per million Btu of heat input on a 30-day rolling average basis when burning gaseous fuel.

2. 0.12 pound per million Btu of heat input on a 30-day rolling average basis when burning distillate fuel oil.

(g) *Combustion turbines.* 1. Gaseous fuel-fired units. Except as provided in subds. 3. and 4., no person may cause, allow or permit nitrogen oxides to be emitted from a gaseous fuel-fired combustion turbine in amounts greater than those specified in this subdivision.

a. 12 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of 85 MWe or greater.

b. 9 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle com-

bustion turbine with a maximum design power output of 40 MWe or greater but less than 85 MWe.

c. 25 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of less than 40 MWe.

d. 3 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a combined cycle combustion turbine with a maximum design power output of 25 MWe or greater.

e. 14 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a combined cycle combustion turbine with a maximum design power output of less than 25 MWe.

2. Distillate fuel oil-fired units. No person may cause, allow or permit nitrogen oxides to be emitted from a distillate fuel oil-fired combustion turbine in amounts greater than those specified in this subdivision.

a. 25 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of 85 MWe or greater.

b. 25 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of 40 MWe or greater but less than 85 MWe.

c. 65 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of less than 40 MWe.

d. 8 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a combined cycle combustion turbine with a maximum design power output of 25 MWe or greater.

e. 25 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a combined cycle combustion turbine with a maximum design power output of less than 25 MWe.

3. Units fired by an integrated gasification process. No person may cause, allow or permit nitrogen oxides to be emitted from a combined cycle combustion turbine that is fired by fuel derived from an integrated gasification process in amounts greater than 15 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis.

4. Units fired by a biologically derived gaseous fuel. No person may cause, allow or permit nitrogen oxides to be emitted from a biologically derived gaseous fuel fired combustion turbine in amounts greater than those specified in this subdivision.

a. 35 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine.

b. 35 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a combined cycle combustion turbine.

(h) *Reciprocating engines.* No person may cause, allow or permit nitrogen oxides to be emitted from a reciprocating engine in amounts greater than those specified in this paragraph.

1. 6.9 grams per brake horsepower for a compression ignition unit with a maximum design power output of 1000 hp or greater.

2. 4.0 grams per brake horsepower for a spark ignition unit with a maximum design power output of 1000 hp or greater.

(3) MONITORING REQUIREMENTS. (a) *General requirements.*

1. The owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of sub. (2) shall comply with the monitoring requirements of subch. III.

2. The emissions measurements recorded and reported in accordance with subch. III shall be used to determine compliance

by the unit with the applicable NO<sub>x</sub> emissions performance standard under sub. (2).

(b) *Specific requirements.* The owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of sub. (2) shall determine the annual average NO<sub>x</sub> emission rate, in pound per million Btu, using methods and procedures specified in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 484.04 (21), or other combustion monitoring methods approved by the department.

(4) **RECORDKEEPING AND REPORTING REQUIREMENTS.** (a) Except as provided in subd. 1., the owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of this section shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created.

1. All emissions monitoring information, in accordance with subch. III; except that, to the extent that subch. III provides for a 3-year period for record retention, the 3-year period shall apply.

2. Copies of all reports, compliance certifications and other submissions and all records made or required under the NO<sub>x</sub> emissions performance program.

(b) The owner or operator of the NO<sub>x</sub> emissions source shall submit the compliance reports and certifications required under the NO<sub>x</sub> emissions performance program in conjunction with those required under the construction permit requirements of ch. NR 406 and the operation permit requirements of s. NR 407.09.

**History:** Cr. Register, January, 2001, No. 541, eff. 2-1-01; CR 02-076: cr. (2) (g) 3, Register November 2002 No. 563, eff. 12-1-02; CR 03-049: am. (2) (g) 1., cr. (2) (g) 4. Register December 2003 No. 576, eff. 1-1-04.

**NR 428.05 Requirements and performance standards for existing sources. (1) APPLICABILITY.** The requirements of this section apply to emissions units described in this section that are located in Kenosha, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington or Waukesha County and that were constructed or last modified on or before February 1, 2001.

(2) **NO<sub>x</sub> EMISSIONS OPTIMIZATION.** (a) The requirements of this subsection do not apply to emissions units which are subject to the emission limits of sub. (3).

(b) Except as provided in par. (a) or (c), the following categories of NO<sub>x</sub> emissions units listed in this subsection shall complete a combustion optimization to minimize NO<sub>x</sub> emissions in accordance with s. NR 439.096 by December 31, 2002.

1. Solid fuel-fired boilers with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

2. Natural gas-fired boilers with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

3. Distillate or residual fuel oil-fired boilers with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

4. Cement kilns, lime kilns and calciners with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

5. Reheat furnaces, annealing furnaces and galvanizing furnaces with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

6. Glass manufacturing furnaces with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

(c) An emissions unit described in par. (b) which first operates with a capacity factor exceeding 20% in an ozone season after the 2000 ozone season shall complete a combustion optimization by December 31 of the calendar year following that ozone season.

(d) The owner or operator of an NO<sub>x</sub> emissions unit subject to a combustion optimization requirement under par. (b) shall operate the emissions unit in a manner consistent with the results of the combustion optimization.

(e) The owner or operator of a source subject to the NO<sub>x</sub> emissions optimization requirements of this subsection shall perform monitoring sufficient to determine compliance with the requirements of this subsection. The monitoring required under this paragraph shall be either continuous monitoring of NO<sub>x</sub> emissions or periodic monitoring of parameters adequate to ascertain the quality of the combustion and shall conform to the source's approved combustion optimization plan pursuant to s. NR 439.096.

(3) **PERFORMANCE STANDARDS.** (a) *Utility boilers.* No person may cause, allow or permit nitrogen oxides to be emitted from a boiler owned or operated by a utility as defined in s. NR 409.02 (84) with a maximum design heat input of 500 million Btu per hour or greater in excess of the most stringent of the following limits, as applicable, during the ozone season:

1. 0.33 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2002.

2. 0.31 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2003.

3. 0.30 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2004.

4. 0.29 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2005.

5. 0.29 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2006.

6. 0.28 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2007.

(b) *Other boilers.* The requirements of this paragraph apply to boilers which are not subject to the emission limits of par. (a).

1. Solid fuel-fired units. On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a solid fuel-fired boiler, with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of the following limits during the ozone season:

a. 0.45 pound per million Btu of heat input on a 30-day rolling average basis for cyclone-fired boilers.

b. 0.20 pound per million Btu of heat input on a 30-day rolling average basis for fluidized bed combustion boilers.

d. 0.30 pound per million Btu of heat input on a 30-day rolling average basis for pulverized coal-fired boilers.

2. Gaseous fuel-fired units. On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a gaseous fuel-fired boiler, with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of 0.10 pound per million Btu of heat input on a 30-day rolling average basis during the ozone season.

3. Distillate fuel oil-fired units. On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a distillate fuel oil-fired boiler, with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of 0.12 pound per million Btu of heat input on a 30-day rolling average basis during the ozone season.



4. Residual fuel oil-fired units. On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a residual fuel oil-fired boiler, with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of 0.20 pound per million Btu of heat input on a 30-day rolling average basis during the ozone season.

(c) *Reheat, annealing and galvanizing furnaces.* On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a reheat furnace, annealing furnace or galvanizing furnace with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of 0.10 pound per million Btu heat input on a 30-day rolling average basis during the ozone season.

(d) *Combustion turbines.* On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a combustion turbine with a maximum design power output of 50 MWe or greater in an amount greater than the following during the ozone season:

1. Gaseous fuel-fired units. 75 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average for units burning gaseous fuel.

2. Distillate fuel oil-fired units. 110 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for units burning distillate fuel oil.

(e) *Reciprocating engines.* On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted during the ozone season from reciprocating engines with a maximum design power output of 2000 hp or greater in excess of the following limits:

1. 9.5 grams per brake horsepower for rich-burn units.
2. 10.0 grams per brake horsepower for lean-burn units.
3. 8.5 grams per brake horsepower for distillate fuel oil-fired units.
4. 6.0 grams per brake horsepower for dual-fuel units.

**(4) MONITORING REQUIREMENTS.** (a) *General requirements.*

1. The owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of sub. (3) shall comply with the monitoring requirements of subch. III.

2. The emissions measurements recorded and reported in accordance with subch. III shall be used to determine compliance by the unit with the NO<sub>x</sub> emissions performance standard under sub. (3).

(b) *Specific requirements.* 1. The owner or operator of an emissions unit subject to the requirements of sub. (3) (a) shall determine the average NO<sub>x</sub> emission rate, in pound per million Btu, using the methods and procedures specified in 40 CFR part 75, Appendices A through I, incorporated by reference in s. NR 484.04 (27).

2. The owner or operator of an emissions unit subject to any of the requirements of sub. (3) (b) to (e) shall determine the average NO<sub>x</sub> emission rate, in pounds per million Btu, using methods and procedures specified in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 484.04 (21), or other combustion monitoring methods approved by the department.

**(5) RECORDKEEPING AND REPORTING REQUIREMENTS.** (a)

Unless otherwise provided, the owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of this section shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created:

1. All emissions monitoring information, in accordance with subch. III; except that, to the extent that subch. III provides for a 3-year period for record retention, the 3-year period shall apply.

2. Copies of all reports, compliance certifications and other submissions and all records made or required under the NO<sub>x</sub> emissions performance program.

(b) The owner or operator of the NO<sub>x</sub> emissions source shall submit the compliance reports and certifications required under the NO<sub>x</sub> emissions performance program in conjunction with those required under the operation permit requirements of s. NR 407.09.

**History:** Cr. Register, January, 2001, No. 541, eff. 2-1-01.

## Subchapter II — NO<sub>x</sub> Emissions Performance Program Compliance Provisions

**NR 428.06 Determination of compliance.** (1) **EMISSIONS UNIT COMPLIANCE.** Except as provided in sub. (2), each emissions unit subject to the requirements of s. NR 428.04 (2) or 428.05 (3) shall demonstrate compliance with the applicable performance standards under those provisions on a per unit basis.

(2) **UNIT OZONE SEASON NO<sub>x</sub> EMISSIONS AVERAGING PROGRAM.** (a) Except as provided in par. (b), units subject to s. NR 428.05 (3) (a) may participate in an ozone season NO<sub>x</sub> emission averaging program for purposes of demonstrating compliance with ozone season NO<sub>x</sub> emission limitations in s. NR 428.05 (3) during the ozone seasons of calendar years 2003 and later.

(b) Excess NO<sub>x</sub> emission reductions from emissions units subject to s. NR 428.05 that are used in an ozone season NO<sub>x</sub> emissions averaging program under this subchapter may not be used for demonstrating compliance by an emissions unit with an NO<sub>x</sub> emission limitation established under ch. NR 405 or 408 or s. NR 409.065 or 428.04.

(c) Excess NO<sub>x</sub> emission reductions, for purposes of meeting the requirements of this subchapter, shall be emissions reductions beyond those required to meet all state and federal requirements. In addition, excess emission reductions shall be quantifiable through the monitoring requirements under ss. NR 428.05 and 428.07, and enforceable.

(3) **AGGREGATE LIMIT ON OZONE SEASON EMISSIONS.** All units participating in an ozone season NO<sub>x</sub> emissions averaging program after December 31, 2007 shall be subject to an aggregate limit on the total tons of NO<sub>x</sub> which may be emitted during the ozone season as determined under sub. (4) (e).

(4) **PROSPECTIVE EMISSIONS AVERAGING PLAN.** An owner or operator of an emissions unit who wishes to participate in an ozone season NO<sub>x</sub> emissions averaging program shall submit a prospective emissions averaging plan to notify the department of all the owner's or operator's emissions units participating in an ozone season NO<sub>x</sub> emissions averaging program. This plan shall establish compliance requirements for each unit and for all units in the aggregate with respect to emissions rate limitations and mass emissions limitations. The plan shall estimate each participating unit's anticipated operation to meet these requirements.

(a) *Plan submission.* The emissions averaging plan shall be submitted to the department no later than 90 days prior to the beginning of the ozone season covered by the plan. A revised plan may be submitted to the department no later than 30 days prior to the beginning of the ozone season covered by the plan.

(b) *Plan elements.* The emissions averaging plan shall include the following information for each emissions unit participating in the averaging program. All information shall be provided by applicable fuel category.

1. The responsible owners or operators.
2. The applicable ch. NR 428 emission limitation.
3. The projected ozone season heat input in million Btu or equivalent units.
4. The projected average NO<sub>x</sub> emission rate, in pounds per million Btu or equivalent, and total mass emissions for the ozone season.

5. Information sufficient to determine the emission rate and mass emission limit and the alternative compliance limit required under par. (f) for each unit.

(c) *Units with multiple owners.* If an emissions unit has multiple owners, the unit's mass emissions and heat input may be allocated among the owners provided all mass emissions and the entire heat input of the unit are allocated. Alternatively, the operator of a unit with multiple owners shall be allocated all mass emissions and the entire heat input. Each owner may use his or her share of mass emissions and heat input in any ozone season NO<sub>x</sub> emissions averaging plan. Each owner shall be the responsible party for compliance and liability for the owner's share of mass emissions and heat input for the requirements of this subchapter.

(d) *Plan emission rate limit.* 1. The emissions averaging plan shall establish an aggregate ozone season NO<sub>x</sub> emission rate limit for all of the emissions units participating in the averaging program.

2. The aggregate ozone season NO<sub>x</sub> emission rate limit is calculated as the heat input weighted aggregate of the individual unit's ozone season emission rate requirements less an environmental benefit factor of 0.01 pounds per million Btu or equivalent for each unit. This calculation is expressed as:

Plan Emission Rate = {Sum [Projected Unit Heat Input x (Unit Emission Rate Limit - 0.01)]} / (Sum of Projected Unit Heat Inputs)

(e) *Plan mass emission limitation.* 1. The emissions averaging plan shall establish an ozone season aggregate mass NO<sub>x</sub> emission limitation for all of the units participating in an averaging program during any ozone season after December 31, 2007.

2. The aggregate mass emissions for all units that are eligible to participate in an emissions averaging plan may not exceed the combined allocation of all participating units' mass emissions limitation as determined under subd. 3.

3. Each unit participating in any ozone season NO<sub>x</sub> emissions averaging plan shall have a mass emissions limitation equal to 15,912 tons multiplied by that unit's share of the average aggregate heat input of all eligible units of all owners determined by actual heat inputs for these units from the 1995, 1996 and 1997 ozone seasons as determined by the department.

4. If a unit eligible to participate in an ozone season NO<sub>x</sub> emissions averaging plan is retired and replaced by another emissions unit at the same site, the mass emissions from the retired unit may still be used in a plan provided the replacement unit's mass emissions for that ozone season are subtracted from the retired unit's mass NO<sub>x</sub> emissions limitation determined under subd. 3.

(f) *Unit alternative compliance limits.* 1. The emissions averaging plan shall establish an alternative compliance limit for each unit participating in the averaging program.

2. The unit alternative compliance limit in mass per million Btu shall be determined by dividing the unit's projected ozone season NO<sub>x</sub> emissions by its projected ozone season heat input.

3. The plan shall provide calculations that demonstrate that the projected emissions units operations will not exceed the plan's emission rate and mass limit.

(g) *Plan review.* The emissions averaging plan shall be subject to department review and determination of completeness. The department shall make its determination of completeness and inform the owner or operator of any additional information needed in the plan within 30 days of receipt.

(h) *Public notice.* 1. The owner or operator of any emissions unit participating in an emissions averaging plan shall provide public notice of that plan by publication in a local newspaper at least 60 days prior to the start of the ozone season to which the plan relates and shall provide copies of the plan upon request.

2. The notice shall indicate the purpose of the plan, the participating units and how to obtain a copy of the plan.

(i) *Compliance demonstration.* 1. The owners or operators of any emissions units participating in an emissions averaging plan shall submit a compliance report to the department not later than 60 days after the last day of the ozone season with information sufficient to demonstrate compliance with the plan's emission rate and mass emissions limit.

2. The compliance report shall provide, for each emissions unit, the heat input, NO<sub>x</sub> emission rate and total NO<sub>x</sub> mass emissions for the ozone season. The compliance report shall provide, in aggregate for all units participating in the emissions averaging plan, the ozone season NO<sub>x</sub> mass emissions, heat input in million Btu or equivalent units, and the average emission rate. The aggregate ozone season NO<sub>x</sub> emission rate shall be calculated as sum of the actual heat input of each unit times the individual unit's actual emission rate divided by the sum of the actual heat inputs of all units. This calculation is expressed as:

Aggregate average ozone season emission rate = [Sum (actual heat input by unit x actual emission rate by unit)] / (Sum of actual heat inputs)

3. Individual units may not be withdrawn from an ozone season NO<sub>x</sub> emissions averaging plan unless it is demonstrated in the compliance report that the withdrawn units individually met their applicable s. NR 428.05 (3) emissions limitation requirements and the remaining units in the plan demonstrate compliance with an ozone season NO<sub>x</sub> emissions averaging plan after excluding the withdrawn units.

4. If there is a successful demonstration of compliance with the plan's aggregate emissions rate limitation and with the plan's aggregate mass NO<sub>x</sub> emissions limitation for the ozone season, all units in the averaging plan shall be deemed to be in compliance for that ozone season with each participating unit's alternative emissions rate limitation and heat input.

(j) *Violations and penalties.* 1. All emissions units participating in an ozone season NO<sub>x</sub> emissions averaging program may be considered out of compliance if either the aggregate ozone season NO<sub>x</sub> emission rate exceeds the emissions averaging plan's emission rate limitation or the aggregate mass NO<sub>x</sub> emissions for the ozone season exceeds the plan's aggregate mass NO<sub>x</sub> emissions limitation for the ozone season.

2. Each emissions unit is considered in violation for each day of non-compliance until corrective action is taken to reduce emissions and achieve compliance.

3. The department may require additional emission reductions if there are mass emissions exceeding the plan's limit on tons of mass emissions. The department may waive the additional emission reductions if, in consultation with the public service commission, the department determines that the excess emissions were the result of an extraordinary event and that the excess emissions were an unavoidable outcome of a necessary action taken by the source to maintain electric system reliability. Additional emission reductions shall be achieved within the subsequent 3 ozone seasons' allowable mass emission limit for all units participating in the emissions averaging plan. If there is no subsequent averaging plan for the source, the department may require a reduction in the source's emission rate that achieves an equivalent aggregate mass emission reduction.

4. All owners or operators of emissions units considered to be out of compliance with a plan emission rate limit or mass tons limit are liable for each violation and subject to enforcement and penalty provisions under ss. 285.83 and 285.87, Stats.

(k) *Monitoring requirements.* The total mass emissions and heat input shall be quantified by continuous emissions monitoring

equipment and procedures required by ss. NR 428.05 (4) and 428.07.

(L) *Recordkeeping and reporting requirements.* Owners and operators shall comply with the recordkeeping and reporting requirements of s. NR 428.05 (5).

**History:** Cr. Register, January, 2001, No. 541, eff. 2-1-01; CR 02-076; r. and recr. Register November 2002 No. 563, eff. 12-1-02; CR 03-049; am. (2) (a) Register December 2003 No. 576, eff. 1-1-04.

### Subchapter III — NO<sub>x</sub> Emissions Performance Program Monitoring And Reporting Provisions

**NR 428.07 General requirements.** The owner or operator of an NO<sub>x</sub> emissions unit subject to the requirements of subch. I shall comply with the monitoring and reporting requirements of this subchapter.

(1) **REQUIREMENTS FOR MONITORING, INSTALLATION, CERTIFICATION AND DATA ACCOUNTING.** (a) By the dates listed in sub. (2), the owner or operator of an NO<sub>x</sub> emissions unit shall submit to the department a monitoring plan that describes in detail the systems to be used on the unit to satisfy the monitoring requirements of this subchapter.

(b) The owner or operator of each NO<sub>x</sub> emissions unit shall do all of the following:

1. Install all monitoring systems required under this subchapter for monitoring NO<sub>x</sub> mass. This includes all systems required to monitor NO<sub>x</sub> emission rate, NO<sub>x</sub> concentration, heat input and flow, in accordance with s. NR 439.09.

2. Install all monitoring systems for monitoring heat input, if required under this chapter, for developing NO<sub>x</sub> emission rate determinations expressed in pounds per million Btu.

3. Successfully complete all certification tests and meet all other provisions of this subchapter and 40 CFR parts 60 and 75 applicable to the monitoring systems under subds. 1. and 2.

4. Record and report data from the monitoring systems under subds. 1. and 2.

(2) **COMPLIANCE DATES.** The owner or operator shall meet the requirements of sub. (1) (b) 1. to 3. on or before the following dates and shall record and report data on and after the applicable listed date as follows:

(a) NO<sub>x</sub> emissions units subject to the requirements of this subchapter that commence operation before February 1, 2001 shall comply with the requirements of this subchapter by December 31, 2002.

(b) NO<sub>x</sub> emissions units subject to the requirements of this subchapter that commence operation on or after February 1, 2001 shall comply with the requirements of this subchapter by the later of the following dates:

1. December 31, 2002.
2. 180 days after the date on which the unit commences operation.

(c) However, if the applicable deadline under par. (b) does not occur during an ozone season, the deadline for compliance with the requirements of this subchapter becomes the May 1 immediately following the date determined in accordance with par. (b).

(d) 1. An NO<sub>x</sub> emissions unit with a new stack or flue for which construction is completed after the applicable deadline under par. (a), (b) or (c) shall comply with the requirements of this subchapter 90 days after the date on which emissions first exit through the new stack or flue.

2. However, if the unit reports on an ozone season basis and the applicable deadline under subd. 1. does not occur during the ozone season, the deadline for compliance with the requirements of this subchapter becomes the May 1 immediately following the date determined in accordance with subd. 1.

(3) **REPORTING DATA PRIOR TO INITIAL CERTIFICATION.** The owner or operator of an NO<sub>x</sub> emissions unit under sub. (2) (b) or

(c) shall determine, record and report NO<sub>x</sub> mass, heat input, if required for purposes of compliance, and any other values required to determine NO<sub>x</sub> mass, for example NO<sub>x</sub> emission rate and heat input or NO<sub>x</sub> concentration and stack flow, using the provisions of 40 CFR 75.70(g), from the date and hour that the unit starts operating until all required certification tests are successfully completed.

(4) **PROHIBITIONS.** (a) No owner or operator of an NO<sub>x</sub> emissions unit may use any alternative monitoring system, alternative reference method or any other alternative for the required continuous emission monitoring system without having obtained prior written approval in accordance with s. NR 428.10.

(b) No owner or operator of an NO<sub>x</sub> emissions unit may operate the unit so as to emit NO<sub>x</sub> without accounting for all NO<sub>x</sub> emissions in accordance with the applicable provisions of this subchapter.

(c) No owner or operator of an NO<sub>x</sub> emissions unit may disrupt the continuous emission monitoring system, any portion thereof, or any other approved emission monitoring method, and thereby avoid monitoring and recording NO<sub>x</sub> mass emissions emitted, except for periods of recertification or periods when calibration, quality assurance testing or maintenance is performed in accordance with the applicable provisions of this subchapter.

(d) No owner or operator of an NO<sub>x</sub> emissions unit may retire or permanently discontinue use of the continuous emission monitoring system, any component thereof or any other approved emission monitoring system under this subchapter, except under one of the following circumstances:

1. The unit is within a period during which it is covered by a retired unit exemption under s. NR 409.05 that is in effect.

2. The owner or operator is monitoring emissions from the unit with another certified monitoring system approved, in accordance with the applicable provisions of this subchapter, by the department for use at that unit that provides emission data for the same pollutant or data for the same parameter as the retired or discontinued monitoring system.

**History:** Cr. Register, January, 2001, No. 541, eff. 2-1-01.

**NR 428.08 Specific provisions for monitoring NO<sub>x</sub> and heat input for the purpose of calculating NO<sub>x</sub> mass emissions.** (1) **UTILITY UNITS.** This subsection applies to NO<sub>x</sub> emissions units subject to the requirements of s. NR 428.05 (3) (a).

(a) *Coal-fired units.* The owner or operator of a coal-fired boiler shall do one of the following:

1. Meet the general operating requirements in 40 CFR 75.10 for an NO<sub>x</sub>-diluent continuous emission monitoring system, consisting of an NO<sub>x</sub> pollutant concentration monitor, an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor and a data acquisition and handling system, to measure NO<sub>x</sub> emission rate, and for a flow monitoring system and an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor to measure heat input, except as provided in accordance with subpart E of 40 CFR part 75.

2. Meet the general operating requirements in 40 CFR 75.10 for an NO<sub>x</sub> concentration monitoring system, consisting of an NO<sub>x</sub> pollutant concentration monitor and a data acquisition and handling system, to measure NO<sub>x</sub> concentration and for a flow monitoring system. In addition, if heat input is required to be reported under this chapter, the owner or operator also shall meet the general operating requirements for a flow monitoring system and an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor to measure heat input, or, if applicable, use the procedures in Appendix D to 40 CFR part 75, incorporated by reference in s. NR 484.04 (27). These requirements shall be met, except as provided in subpart E of 40 CFR part 75.

(b) *Moisture correction.* If a correction for the stack gas moisture content is needed to properly calculate the NO<sub>x</sub> emission rate in pounds per million Btu, i.e., if the NO<sub>x</sub> pollutant concentration monitor measures on a different moisture basis from the diluent



monitor, or NO<sub>x</sub> mass emissions in tons, i.e., if the NO<sub>x</sub> concentration monitoring system or diluent monitor measures on a different moisture basis from the flow rate monitor, the owner or operator of a boiler shall account for the moisture content of the flue gas on a continuous basis in accordance with 40 CFR 75.11(b) except that the term "SO<sub>2</sub>" shall be replaced by the term "NO<sub>x</sub>".

(c) *Gaseous fuel-fired nonpeaking units or oil-fired nonpeaking units.* The owner or operator of a boiler or combustion turbine that, based on information submitted in the monitoring plan, qualifies as a gaseous fuel-fired or oil-fired unit but not as a peaking unit, as defined in 40 CFR 72.2, shall do one of the following:

1. Meet the requirements of par. (a) and, if applicable, par. (b).
2. Meet the general operating requirements in 40 CFR 75.10 for an NO<sub>x</sub>-diluent continuous emission monitoring system, except as provided in accordance with 40 CFR part 75 Subpart E, and use the procedures specified in Appendix D to 40 CFR part 75, incorporated by reference in s. NR 484.04 (27), for determining hourly heat input.

(d) *Gaseous fuel-fired or oil-fired peaking units.* The owner or operator of a boiler or combustion turbine that qualifies as a peaking unit and as either gaseous fuel-fired or oil-fired, as defined in 40 CFR 72.2, based on information submitted in the monitoring plan, shall do one of the following:

1. Meet the requirements of par. (c).
2. Use the procedures in 40 CFR part 75 Appendix D, incorporated by reference in s. NR 484.04 (27), for determining hourly heat input and the procedures specified in 40 CFR part 75 Appendix E, incorporated by reference in s. NR 484.04 (27), for estimating the hourly NO<sub>x</sub> emission rate. In addition, if after certification of an excepted monitoring system under 40 CFR part 75 Appendix E, a unit's operations exceed a capacity factor of 20.0% in any calendar year or exceed a capacity factor of 10.0% averaged over 3 years, the owner or operator shall meet the requirements of par. (c) or, if applicable, par. (e), by no later than December 31 of the following calendar year.

(e) *Other units.* The owner or operator of a boiler or combustion turbine that combusts wood, refuse or other materials shall comply with the monitoring provisions specified in par. (a) and, where applicable, par. (b).

**(2) NON-UTILITY UNITS.** This subsection applies to NO<sub>x</sub> emissions units subject to the requirements of s. NR 428.04 (2) or 428.05 (3) (b) to (e).

(a) *Coal-fired units.* The owner or operator of a coal-fired boiler shall do one of the following:

1. Meet the general operating requirements in 40 CFR 60.13 for an NO<sub>x</sub>-diluent continuous emission monitoring system, consisting of an NO<sub>x</sub> pollutant concentration monitor, an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor, and a data acquisition and handling system, to measure NO<sub>x</sub> emission rate, and for a flow monitoring system and an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor to measure heat input, except as provided in accordance with 40 CFR 60.13(i).
2. Meet the general operating requirements in 40 CFR 60.13 for an NO<sub>x</sub> concentration monitoring system, consisting of an NO<sub>x</sub> pollutant concentration monitor and a data acquisition and handling system, to measure NO<sub>x</sub> concentration and for a flow monitoring system. In addition, if heat input is required to be reported under this chapter, the owner or operator also shall meet the general operating requirements for a flow monitoring system and an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor to measure heat input, or, if applicable, use the procedures in Appendix E to 40 CFR part 75, incorporated by reference in s. NR 484.04 (27). These requirements shall be met, except as provided in 40 CFR 60.13(i).

(b) *Moisture correction.* If a correction for the stack gas moisture content is needed to properly calculate the NO<sub>x</sub> emission rate in pounds per million Btu, i.e., if the NO<sub>x</sub> pollutant concentration monitor measures on a different moisture basis from the diluent monitor, or NO<sub>x</sub> mass emissions in tons, i.e., if the NO<sub>x</sub> concentra-

tion monitoring system or diluent monitor measures on a different moisture basis from the flow rate monitor, the owner or operator of an NO<sub>x</sub> emissions unit subject to the requirements of this subchapter shall account for the moisture content of the flue gas on a continuous basis in accordance with 40 CFR 75.11(b) except that the term "SO<sub>2</sub>" shall be replaced by the term "NO<sub>x</sub>".

(c) *Gaseous fuel-fired nonpeaking units or oil-fired nonpeaking units.* The owner or operator of a boiler or combustion turbine that, based on information submitted in the monitoring plan, qualifies as a gaseous fuel-fired or oil-fired unit but not as a peaking unit, as defined in 40 CFR 72.2, shall do one of the following:

1. Meet the requirements of par. (a) and, if applicable, par. (b).
2. Meet the general operating requirements in 40 CFR 60.13 for an NO<sub>x</sub>-diluent continuous emission monitoring system, except as provided in accordance with 40 CFR 60.13(i), and use the procedures specified in Appendix D to 40 CFR part 75, incorporated by reference in s. NR 484.04 (27), for determining hourly heat input.

(d) *Gaseous fuel-fired or oil-fired peaking units.* The owner or operator of a boiler or combustion turbine that qualifies as a peaking unit and as either gaseous fuel-fired or oil-fired, as defined in 40 CFR 72.2, based on information submitted in the monitoring plan, shall do one of the following:

1. Meet the requirements of par. (c).
2. Use the procedures in 40 CFR part 75 Appendix D, incorporated by reference in s. NR 484.04 (27), for determining hourly heat input and the procedures specified in 40 CFR part 75 Appendix E, incorporated by reference in s. NR 484.04 (27), for estimating hourly NO<sub>x</sub> emission rate. In addition, if after certification of an excepted monitoring system under 40 CFR part 75 Appendix E, a unit's operations exceed a capacity factor of 20.0% in any calendar year or exceed a capacity factor of 10.0% averaged over 3 years, the owner or operator shall meet the requirements of par. (c) or, if applicable, par. (e), by no later than December 31 of the following calendar year.

(e) *Other units.* The owner or operator of a boiler or combustion turbine that combusts wood, refuse or other materials shall comply with the monitoring provisions specified in par. (a) and, where applicable, par. (b).

**History:** Cr. Register, January, 2001, No. 541, eff. 2-1-01.

**NR 428.09 Quarterly reports.** The owner or operator of a unit subject to the NO<sub>x</sub> requirements of this subchapter shall submit quarterly reports, as required under this section.

**(1) UNITS SUBJECT TO AN ACID RAIN EMISSION LIMITATION.** If a unit is subject to an acid rain emission limitation or if the owner or operator of the NO<sub>x</sub> emissions unit chooses to meet the annual reporting requirements of this subchapter, the owner or operator shall submit a quarterly report for each calendar quarter beginning with the following quarters:

- (a) For units commencing operation prior to December 31, 2002, the calendar quarter from April 1, 2003 to June 30, 2003. Data shall be recorded and reported from the first hour on May 1, 2003.
- (b) For a unit that commences operation on or after December 31, 2002, the calendar quarter in which the unit commences operation. Data shall be reported from the date and hour corresponding to when the unit commenced operation.

**(2) UNITS NOT SUBJECT TO AN ACID RAIN EMISSION LIMITATION.** If an NO<sub>x</sub> emissions unit is not subject to an acid rain emission limitation, the owner or operator of the NO<sub>x</sub> emissions source shall comply with either of the following requirements:

- (a) Meet all of the requirements of 40 CFR part 75 related to monitoring and reporting NO<sub>x</sub> mass emissions during the entire year and meet the reporting deadlines specified in sub. (1).
- (b) Submit a quarterly report for each calendar quarter, beginning with the following quarters:

1. For units commencing operation prior to December 31, 2002, the calendar quarter from April 1, 2003 to June 30, 2003. Data shall be reported from the first hour of April 1, 2003.

2. For units that commence operation on or after December 31, 2002, the calendar quarter in which the unit commences operation. Data shall be reported from the date and hour corresponding to when the unit commenced operation.

**(3) DEADLINES FOR SUBMITTALS.** The owner or operator of an NO<sub>x</sub> emissions source shall submit each quarterly report to the department within 30 days following the end of the calendar quarter covered by the report according to the following schedule:

(a) For units subject to an acid rain emissions limitation, quarterly reports shall be submitted within 30 days following the end of the calendar quarter covered by the report and include all of the data and information required in subpart G of 40 CFR part 75.

(b) For units not subject to an acid rain emissions limitation, reports shall be submitted with the compliance reports required under the facility's operation permit.

**(4) COMPLIANCE CERTIFICATION.** The owner or operator of an NO<sub>x</sub> emissions source shall submit to the department a compliance certification in support of each quarterly report based on reasonable inquiry of those persons with primary responsibility for ensuring that all of the unit's emissions are correctly and fully monitored. The certification shall state the following:

(a) The monitoring data submitted were recorded in accor-

dance with the applicable requirements of this subchapter, including the quality assurance procedures and specifications.

(b) For a unit with add-on NO<sub>x</sub> emission controls and for all hours where data are substituted in accordance with 40 CFR 75.34(a)(1), the add-on emission controls were operating within the range of parameters listed in the monitoring plan and the substitute values do not systematically underestimate NO<sub>x</sub> emissions.

(c) For a unit that is reporting on an ozone season basis under this subsection, the NO<sub>x</sub> emission rate and NO<sub>x</sub> concentration values substituted for missing data under subpart D of 40 CFR part 75 are calculated using only values from an ozone season and do not systematically underestimate NO<sub>x</sub> emissions.

**History:** Cr. Register, January, 2001, No. 541, eff. 2-1-01.

**NR 428.10 Petitions.** The owner or operator of an NO<sub>x</sub> emissions source may submit a petition to the department requesting approval to apply an alternative to any requirement of this subchapter. Application of an alternative to any requirement of this subchapter is in accordance with this subchapter only to the extent that the petition under this section is approved by the department.

**History:** Cr. Register, January, 2001, No. 541, eff. 2-1-01.

**NR 428.11 Additional requirements to provide heat input data.** The owner or operator of a unit that either monitors and reports or elects to monitor and report NO<sub>x</sub> mass emissions using an NO<sub>x</sub> concentration system and a flow system shall also monitor and report heat input at the unit level.

**History:** Cr. Register, January, 2001, No. 541, eff. 2-1-01.